



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 21, 2020

Mr. Steve Snider
Vice President Nuclear Engineering
Duke Energy
526 South Church Street, EC-07H
Charlotte, NC 28202

SUBJECT: APPLICATION FOR EXEMPTIONS FOR CATAWBA AND MCGUIRE
INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS – REQUEST FOR
ADDITIONAL INFORMATION

Dear Mr. Snider:

By letter dated January 9, 2020 (Agencywide Documents Access and Management System Accession No. ML20009E527), Duke Energy (Duke) requested exemptions pursuant to Title 10 of the *Code of Federal Regulations* 72.7, for the McGuire Nuclear Station and Catawba Nuclear Station to be able to use two exceptions to the American Society of Mechanical Engineers, Boiler and Pressure Vessel Code for the storage of spent fuel in the independent spent fuel storage installation at Catawba and McGuire using the MAGNASTOR® storage cask.

In connection with our review, we need the information identified in the enclosure to this letter. Please provide your response within 3 weeks from the date of this letter.

Please reference Docket No. 72-38 and Enterprise Project Identifier No. L-2020-LLE-0003 for the McGuire exemption and Docket No. 72-45 and Enterprise Project Identifier No. L-2020-LLE-0004 for the Catawba exemption in future correspondence related to this request. The staff is available to meet to discuss your proposed responses. If you have any questions regarding this matter, please contact me at (301) 415-6577.

Sincerely,

/RA/ D. Doyle for

Bernard White, Senior Project Manager
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket Nos. 72-38 and 72-45
EPID Nos. L-2020-LLE-0003, and
L-2020-LLE-0004

Enclosure:
Request for Additional Information

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ADDITIONAL INFORMATION

DATED: February 21, 2020

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M. Mahoney, NRR

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*** via email**

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**REQUEST FOR ADDITIONAL INFORMATION RELATED TO
EXEMPTION REQUEST FOR CATAWBA AND MCGUIRE
INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS
DOCKET NOS. 72-38 AND 72-45**

By letter dated January 9, 2020 (Agencywide Documents Access and Management System Accession No. ML20009E527), Duke Energy (Duke) requested exemptions pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 72.7, for the McGuire Nuclear Station and Catawba Nuclear Station to be able to use two exceptions to the American Society of Mechanical Engineers, Boiler and Pressure Vessel Code for the storage of spent fuel in the independent spent fuel storage installation at Catawba and McGuire using the MAGNASTOR® storage cask. This request for additional information identifies information needed by the U.S. Nuclear Regulatory Commission staff in connection with its review of the application. The NRC staff used NUREG-1536, "Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility — Final Report," in its review of the application.

Each question describes information needed by the staff for it to complete its review of the application and to determine whether the applicant has demonstrated compliance with regulatory requirements.

Materials Review

1. Provide additional information that demonstrates that the tested material in the NAC International (NAC) assessment of Charpy V-Notch (CVN) specimen orientation is representative of the subject basket assembly plates.

The NAC assessment in Enclosure 5, Report ID 71160-WP-020, Revision 2, "NAC International Assessment of Longitudinal Versus Transverse Charpy Impact Testing for A537 and A517 Materials," of the effects of CVN specimen orientation states that it used plate material from past and existing projects that are representative of the materials that are the subject of the requested exemption. However, for some of the subject basket assembly components, information on the steel grade is not available in the design drawings.

The staff notes that variations in CVN properties with respect to plate orientation are typically due to chemistry and microstructural features that may be unique to the steel grade and heat treatment. As a result, provide the following information and justify that it supports the representative nature of the NAC International assessment:

- a. The American Society of Mechanical Engineers specification and grades of all procured plates for which the carbon steel grade is not defined in the drawings (e.g., drive pins and spacers in Drawing Nos 71160-575 (Basket Assembly) and 71160-675 (DF {Damaged Fuel} Basket Assembly)).
- b. Clarify whether the NAC assessment tested A516 or A517 steels. The staff notes that the title of the assessment includes "...A537 and A517 Materials", while the provided tables of data include only A537 and A516 steels.

This information is needed to demonstrate compliance with 10 CFR 72.122(a) and (b), 10 CFR 72.124(a), and 10 CFR 72.154.

Enclosure

2. Provide details on the Kobe Steel data in the NAC assessment of CVN specimen orientation that demonstrate that the data is relevant to the behavior of the basket assembly plates.

In support of the assessment of the effects of CVN specimen orientation, the exemption request provided Figure 1 from a Kobe Steel report.

It is unclear to the staff what materials were tested to generate the data in Figure 1 and thus whether that data supports the analysis of the basket assembly subcomponents. As a result, provide either the referenced Kobe Steel report or information on the material specification, grade, heat treatment, and thickness of the plates that were tested to generate the data.

This information is needed to demonstrate compliance with 10 CFR 72.122(a) and (b), 10 CFR 72.124(a), and 10 CFR 72.154.

3. Provide details on the ultrasonic re-examination of plates and justify that the results can be used to characterize the effects of normalizing of the subject basket assembly plates.

In support of the analysis of the implications of performing flaw examinations prior the normalizing treatment, some plates were re-examined after normalizing.

It is unclear to the staff the extent to which steel plates were re-examined and if those plates are relevant to the subject basket assembly material. As a result, provide the quantity of examined plates, the approximate size/surface area examined, and the plates' material specification, grade, and thickness. Justify that these sampling conditions adequately support the conclusion that normalizing does not introduce additional defects in the material.

This information is needed to demonstrate compliance with 10 CFR 72.122(a) and (b), 10 CFR 72.124(a), and 10 CFR 72.154.